WE CLAIM:

1. A process for regenerating a hydrocarbon conversion catalyst comprising zeolite L, the process comprising contacting the catalyst with ozone.

2. The process of Claim 1 further characterized in that the catalyst has coke deposited thereon, and the process comprises removing at least a portion of the coke from the catalyst.

3. The process of claim 1 further characterized in that the contacting occurs at a temperature of from about 20 to about 250°C.

4. The process of claim 1 further characterized in that the contacting occurs at a partial pressure of ozone of up to about 101.3 kPa(g).

5. The process of claim 1 further characterized in that the contacting the catalyst with ozone comprises contacting the catalyst with an ozone-containing gas having a concentration of ozone of from about 0.1 to about 5 mol-%.

6. The process of claim 1 further characterized in that the zeolite L contains a metal selected from the group consisting of metals in IUPAC Group 6 (VI A), IUPAC Group 7 (VII A), IUPAC Group 8-10 (VIII A), and IUPAC Group 14 (IV B) of the Periodic Table of the Elements.

7. A process for at least partially reactivating a coked zeolite L-containing reforming catalyst, the process comprising contacting the catalyst with a gaseous stream comprising ozone and at least one of air and oxygen and containing from about 0.1 to about 5.0 mol-% ozone, at conditions comprising a temperature of from about 20 to about 250°C and a gas hourly space velocity of up to about 10,000 hr^{-1}, the conditions being sufficient to burn at least a portion of the coke on the catalyst.

8. A hydrocarbon conversion process comprising:

a) contacting hydrocarbons with a reaction bed containing catalyst particles in a reaction zone at hydrocarbon conversion conditions sufficient to deposit coke on the catalyst particles, wherein the catalyst particles comprise a support, zeolite L, and at least one metal selected from the group consisting of metals in IUPAC Group 6 (VI A), IUPAC Group 7 (VII A), IUPAC Group 8-10 (VIII A), and IUPAC Group 14 (IV B) of the Periodic Table of the Elements;

b) at least periodically moving the catalyst particles through the reaction bed by withdrawing catalyst particles containing the coke deposits from an outlet end of the reaction bed and adding catalyst particles to an inlet end of the reaction bed;

c) at least periodically moving the catalyst particles containing the coke deposits from the reaction zone to a regeneration zone and forming a regeneration bed of the catalyst particles in the regeneration zone, wherein the regeneration bed comprises a fixed bed of catalyst particles;

d) at least periodically contacting a combustion gas comprising molecular ozone and having an ozone concentration of from about 0.1 to about 5 mol-% with the catalyst particles containing the coke deposits in the regeneration bed at regeneration conditions sufficient to remove coke from the catalyst particles in the regeneration bed; and

e) at least periodically moving the catalyst particles from the regeneration zone to the reaction zone.

9. The process of Claim 8 further characterized in that the regeneration conditions comprise a temperature of from about 20 to about 250 °C and a partial pressure of ozone of up to about 101.3 kPa(g).

10. The process of claim 8 further characterized in that the catalyst particles in the regeneration bed, after being contacted with the combustion gas and prior to being passed to the reaction zone, are contacted at least periodically at oxyhalogenation conditions with an oxyhalogenation gas comprising molecular oxygen and at least one of molecular halogen and hydrogen halide and having an oxygen content of from about 1 to about 20 mol-%.

11. The process of Claim 10 further characterized in that the oxyhalogenation conditions comprise a temperature of from 350 to about 550 °C and a pressure of from about 101.3 to about 1520 kPa(g).

12. The process of Claim 8 further comprising at least periodically forming a fixed bed of catalyst particles in the reaction zone from the catalyst particles at least periodically moved from the regeneration zone to the reaction zone.

13. The process of Claim 12 further characterized in that the catalyst particles in the fixed bed of catalyst particles in the reaction zone, prior to being contacted with hydrocarbons, are contacted at least periodically at reduction conditions with a reduction gas comprising molecular hydrogen and having a hydrogen content of up to about 100 mol-%.

14. The process of Claim 13 further characterized in that the reduction conditions comprise a temperature of from about 200 to about 500°C.

15. The process of Claim 8 wherein the reaction bed comprises a first reaction bed and further characterized in that the reaction zone contains a second reaction bed containing catalyst particles, the catalyst particles in the second reaction bed are contacted with hydrocarbons at hydrocarbon conversion conditions sufficient to deposit coke on the catalyst particles, and the catalyst particles in the second reaction bed are at least periodically moved through the second reaction bed by withdrawing catalyst particles containing the coke deposits from an outlet end of the second reaction bed and adding catalyst particles withdrawn from the outlet end of the first reaction bed to an inlet end of the second reaction bed.

16. The process of Claim 15 further characterized in that the first and second reaction beds are vertically elongated and placed side by side.

17. The process of Claim 8 further characterized in that the at least periodically moving catalyst particles from the reaction zone to the regeneration zone comprises pneumatically conveying the catalyst particles with a conveying gas.

18. The process of Claim 8 further characterized in that the at least periodically moving catalyst particles from the reaction zone to the regeneration zone comprises passing the catalyst particles by gravity flow.

19. The process of Claim 8 wherein the hydrocarbon conversion process comprises a process selected from the group consisting of a reforming process, a dehydrocyclization process, an isomerization process, a transalkylation process, and a hydrocracking process.

20. The process of Claim 8 further characterized in that the combustion gas comprises oxygen.

21. The process of Claim 8 further characterized in that the regeneration bed has an inlet end and an outlet end, the combustion gas is introduced at the inlet end, a flue gas is withdrawn at the outlet end, and periodically the point of introduction of the combustion gas and the point of withdrawal of the flue gas are switched so that the combustion gas is introduced at the outlet end and the flue gas is withdrawn at the inlet end.